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FARM MANAGEMENT DATA FROM ILLUSTRATION STATION FARMS 1953-1958

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FOREWORD

This report is a reprint of the Farm Management Studies section of the Progress Report of the Illustration Stations Division, Experimental Farms Service, for 1954 to 1958. Effective April 1, 1959, the activities of the Division were absorbed in the functions of the Program Directorate of the Research Branch.

CAPITAL AND ACREAGES OF ILLUSTRATION STATIONS AND ALL FARMS IN CANADA

In 1958 the farm management projects (counted by locations) totaled 1,023. These were carried out on 193 illustration stations. Average acreages and capitalization of the stations, compared with Census of Agriculture data for all farms, were as follows:

Region	Illustration Stations	All Farms
Eastern Canada (92 locations)		
Capitalization	$26,929	$12,543
Total acreage	234	134
Cultivated acreage	111	74
Prairie (84 locations)		
Capitalization	$52,039	$18,890
Total acreage	944	546
Cultivated acreage	679	326
British Columbia (17 locations)		
Capitalization	$38,676	$15,461
Total acreage	478	183
Cultivated acreage	96	47

The census data include many small farms that are considered less typical of the region than are the illustration stations. Also, the capitalization data for illustration stations include the value of feeds and supplies on the farm, whereas the census data do not. Farm management data obtained on a farm such as the illustration station at Nobleford (Figure 1) are useful in evaluating the benefits of a contour-farming program to a farm unit.

Figure 1.—Contour farming at Nobleford, Alta. to conserve moisture and prevent soil erosion.

FARM BUSINESS STUDIES

The data obtained from the general farm business study of these illustration stations were analyzed for the four-year period 1953-56 on a regional basis (Table 1) and by type of farming[1] (Tables 2-4). Since these farms were not selected specifically for a farm business study or as being representative of a region or type of farm, the results should not be applied generally. However, certain of the efficiency factors that were derived (Table 4) for the various types of farming on illustration stations probably indicate what one would find on many similar farms of the same size.

The analysis by regions (Table 1) indicated that, although capital turnover (years for cash income to equal total capital) was slowest on the prairie illustration stations, cash operating expenses per dollar of cash income were lowest.

The stations in the regions listed in Table 1 were as follows:

Atlantic—stations in Newfoundland, Nova Scotia, Prince Edward Island and New Brunswick and two stations on the Magdalen Islands (Quebec).

Central — stations in Quebec and Ontario. There are no illustration stations in southern Ontario.

TABLE 1.—SUMMARY OF FARM MANAGEMENT DATA FOR ILLUSTRATION STATIONS IN CANADA, 1953-56, BY GEOGRAPHIC REGION

Factor	Unit	Average per Station			
		Atlantic 157*	Central 244*	Prairie 358*	Pacific 72*
Total Farm Area	ac.	176	224	913	254
Total Owned Area	ac.	169	198	724	237
Cultivated Area	ac.	72	120	645	97
Capital Investment:					
Land and Fences	$	3,172	5,979	10,902	8,120
Buildings	$	5,414	7,012	7,516	7,127
Livestock	$	3,000	4,772	5,041	5,447
Machinery	$	5,041	6,937	14,780	7,241
Feeds and Supplies	$	2,486	2,172	11,601[1]	3,089
Total	$	19,113	26,872	49,840	31,024
Total Labor Supply in Man-months		24	26	21	22
Cash Farm Income	$	5,944	7,031	11,000	7,532
Cash Operating Expenses[2]	$	3,722	4,182	5,620	4,941
Analysis Factors:					
Cultivated Area of Total	%	40.9	53.6	70.6	38.2
Cash Operating Expenses per Dollar of Cash Farm Income	$	0.63	0.59	0.51	0.66
Cash Farm Income per Cultivated Acre	$	83	59	17	78
Years for Cash Farm Income to Equal Total Capital	No.	3.2	3.8	4.5	4.1

* Number of farm-years in group.
[1] Including grain held for sale.
[2] Does not include depreciation charges or interest on investment.

[1] Type of farming was determined on the basis of the principal source of farm revenue. Where at least 50 per cent of the farm income was obtained from one enterprise then that enterprise determined the type of farming.

TABLE 2.—AVERAGE SIZE OF FARM AND AVERAGE FARM CAPITAL BY TYPE OF FARM[a], ILLUSTRATION STATIONS, 1953-56

Type of Farm	Farm-Years[b]	Total Farm Area	Cultivated Area	Land and Fences	Buildings	Livestock	Machinery	Feeds and Supplies	Total Capital
	No.	ac.	ac.	$	$	$	$	$	$
Mixed Livestock, including Dairy Products	279	397	197	5,622	6,455	5,236	7,924	3,224	28,461
Grain, Hay and Forage Seed	212	1,036	813	13,252	7,581	3,630	16,652	15,963[1]	57,078
Dairy	185	200	105	5,958	7,786	4,849	7,065	2,320	27,978
Mixed Crops and Livestock, including Dairy Products	53	568	319	7,463	5,821	4,339	9,442	4,407	31,472
Beef Cattle	29	578	265	7,592	6,584	9,863	11,855	5,530	41,424
Poultry	20	323	185	4,342	5,458	3,784	6,890	2,044	22,518
Potatoes	16	151	89	4,737	7,611	1,956	7,887	6,056	28,247
Mixed Vegetable Crops	14	73	54	3,507	6,131	2,142	2,334	1,011	15,125

[a] Data for three types of farms for which there were only a limited number of observations were excluded.
[b] Total records for period.
[1] Including grain held for sale.

Prairie — stations in Manitoba, Saskatchewan and Alberta and in the Peace River district of British Columbia.

Pacific — stations in British Columbia except those in the Peace River district.

Unreliable and incomplete data were omitted.

In the analysis by types of farming, illustration stations producing grain, hay and forage seeds had the largest cultivated area and the largest amount of farm capital. Farms producing various crops and livestock (including livestock products) with none predominating were the second largest in cultivated area but beef cattle farms were the second largest in total amount of capital (Table 2).

The distribution of farm capital among the various classes is given in Table 3. The proportion of capital in land and fences was highest on those farms on which crop production was most important or relatively important. Buildings made up the greatest proportion of capital on station farms producing mixed vegetable crops. Machinery amounted to 25 to 31 per cent of farm capital on all types except mixed vegetable farms, which averaged 15.4 per cent. Feeds and supplies on hand, including crops on hand at the end of the year, were highest on farms producing grain, hay, forage seed, and potatoes.

TABLE 3.—DISTRIBUTION OF FARM CAPITAL BY TYPE OF FARM, ILLUSTRATION STATIONS, 1953–56

Type of Farm	Land and Fences	Buildings	Live-stock	Machin-ery	Feeds and Supplies	Total
	%	%	%	%	%	%
Mixed Livestock, including Dairy Products	19.8	22.7	18.4	27.8	11.3	100
Grain, Hay and Forage Seeds	23.2	13.3	6.3	29.2	28.0	100
Dairy	21.3	27.8	17.3	25.3	8.3	100
Mixed Crops and Livestock, including Dairy Products	23.7	18.5	13.8	30.0	14.0	100
Beef Cattle	18.3	15.9	23.8	28.6	13.4	100
Poultry	19.3	24.2	16.8	30.6	9.1	100
Potatoes	16.8	26.9	6.9	27.9	21.5	100
Mixed Vegetable Crops	23.2	40.5	14.2	15.4	6.7	100

The analysis by type of farming (Table 4) indicated that cash operating expenses in relation to cash income were lowest on the mixed vegetable farms, followed closely by the grain, hay and forage seed farms. For five of the eight types for which data are given, costs per $1.00 of income ranged from 58 to 64 cents. Rate of capital turnover, measured by years for cash income to equal total capital, was highest on the poultry farms and lowest on the beef cattle farms. Average value per acre of land, including fences where required, was lowest on the poultry and beef cattle farms and highest on mixed vegetable farms.

SINGLE ENTERPRISE STUDIES

In 1958, studies of single enterprises were conducted at 129 illustration stations. These were conducted jointly with other projects or as special developmental projects. Costs of producing farm crops, including all known production

TABLE 4.—TOTAL LABOR SUPPLY, INCOME, EXPENDITURES AND SELECTED EFFICIENCY MEASURES BY TYPE OF FARM, ILLUSTRATION STATIONS, 1953–56

Type of Farm	Total Man-Labor	Cash Farm Income	Cash Operating Expenses[a]	Cash Operating Expenses Per Dollar of Cash Farm Income	Average Value Per Acre of Land and Fences	Years for Cash Farm Income to Equal Total Capital
	Months	$	$	$	$	Number
Mixed Livestock, including Dairy Products	23	6,472	3,965	0.61	17	4.4
Grain, Hay and Forage Seed	21	12,959	5,993	0.46	16	4.4
Dairy	27	8,002	4,943	0.62	32	3.5
Mixed Crops and Livestock, including Dairy Products	20	6,391	3,701	0.58	17	4.9
Beef Cattle	21	7,096	4,383	0.62	14	5.8
Poultry	21	10,204	7,610	0.75	14	2.2
Potatoes	26	8,780	5,584	0.64	32	3.2
Mixed Vegetable Crops	24	5,044	2,193	0.43	53	3.0

[a] Does not include depreciation charges or interest on investment.

costs at current prices, were determined for 84 locations in Western Canada, mainly in connection with a study of cropping sequences. Milk production costs were studied at 37 locations in Eastern Canada and British Columbia, largely in relation to milk production and herd improvement. Other single enterprise studies were conducted in connection with poultry production, feeder cattle, apiculture and seed production costs.

A study was made in 1957 of costs of producing wheat on fallow at 80 locations in the three prairie provinces. The data are given in Table 5 and classified by location into three subgeographic zones according to soil group. On a basis of costs per acre (but not on a basis of costs per bushel), the differences between these three groups are highly significant. It should be noted that these data pertain only to 80 widely separated locations. However, they indicate that significant differences in production costs per acre for spring wheat on fallow exist between regions but, because of compensating differences in yields, the costs per bushel are relatively uniform.

TABLE 5.—COST OF PRODUCING SPRING WHEAT ON SUMMERFALLOW ON VARIOUS SOIL GROUPS, 1957, AND LONG-TERM AVERAGE

Soil Group	Number of Locations	Number of Crop-Years	Cost per Acre	
			1957**	Average
			$	$
Black and Gray Black	28	286	21.15	17.87
Shallow Black and Dark Brown	30	435	19.94	15.51
Brown	22	320	17.38	12.97
All Groups	80	1,041	19.66	15.64

** Data Significantly different at the P = .01 level.

COSTS OF OPERATING FARM MACHINERY

Costs of field operations in the prairies were studied at 71 locations. For self-propelled grain combines the 1957 data on costs per acre of operating them on 40 illustration stations are given in Table 6. As the size of the machine increases, as measured by table width, the cost per acre decreases. However, there is considerable overlapping in costs between machines of different sizes since grain combines can usually be obtained in two table sizes for the same cylinder capacity. There were no statistically significant differences in average use of machines in the different size groups; use averaged 122 hours per combine. Operating costs included interest on investment, allowances for depreciation and repairs, fuel, oil, grease and labor for operating the combine. Interest was charged at 6 per cent on average investment; depreciation and repairs were based on probable-life estimates of 2,000 hours, repairs being charged at 150 per cent of machine value. Fuel, oil and grease charges were based on current prices. Labor was charged at $1.05 per hour.

TABLE 6.—RELATIONSHIP OF COSTS OF OPERATING SELF-PROPELLED GRAIN COMBINES TO SIZE OF MACHINE, ILLUSTRATION STATIONS, 1957

Size of Grain Combine (table width)	Number of Machines	Operating Costs per Acre			Annual Use[a]
		Average**	High of all Records	Low of all Records	
		$	$	$	hr.
10-foot	6	4.62	5.51	3.68	127
12-foot	15	3.16	5.03	1.98	103
14-foot	10	2.10	3.05	1.65	124
16-foot	9	1.76	2.06	1.15	150
	40	2.80	5.51	1.15	122

** Data significantly different at the P = .01 level.
[a] Data are not significantly different.

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